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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,916	03/14/2002	John H. Oates	0102323-00096	3588

21125 7590 06/15/2005

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EXAMINER

HOQUE, NASRIN

ART UNIT PAPER NUMBER

2631

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/099,916	OATES, JOHN H.	
	Examiner	Art Unit	
	Nasrin Hoque	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 15-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The specifications states that block "100" and "112" refer to base station and rake modems respectively (Page 20, lines 9-13). Figure 1 refers "100" as rake modem and "112" as base station. It is recommended to modify either specification or Fig 1 and incorporate changes accordingly.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 6 does not specify composition (and decomposition) of rectangular and triangular components, which fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 7-9 are rejected due to their dependency on claim 6.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3, 4, 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3, 4, 13 and 14 do not specify "detection statistics".

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US Patent No 6,600,729) in view of Juan (US 6,754,805). Suzuki discloses the entire subject matters in the field of interference cancellation in CDMA that plural users signals are received (Suzuki: column 5, lines 61 - 62) for cross correlation (Suzuki: column 10, line 23), except parallel task for computing. Juan discloses in the field of enhanced DSP (Juan: column 5, lines 10-13) that parallel tasks for computation can be supported (Juan: column 5, lines 14-25 and column 6, lines 66-67 & Figure 2, column 7, lines 23-34, Fig 3). The references (Suzuki and Juan) are analogous art because they are from same field of endeavor for cross correlation. At the time of the invention, it would have

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been obvious to a person of ordinary skill in the art that a specific function such as via parallel processing many common operations such as cross correlation can be supported (Juan: colum 5, lines 25-28 and column 3, lines 8-12). The motivation for doing so would have been to support parallel processing for expedited computation. Therefore it would have been obvious to combine above (Suzuki and Juan) references to obtain the invention as specified in claim 1.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki and Juan (as applied to claim 1) and further in view of Elezabi et al. (Pub No : 2002/0122393). Suzuki and Juan disclose the entire subject matters (as applied to claim 1) except each signal gets processed via same processing unit(s). Elezabi discloses that at the receiver, a bank of K matched filter correlators or despreaders despread each user's signal (Elezabi: [0020] and [0028] & [0006], Fig 1 and 2). The references (Suzuki, Juan and Elezabi) are analogous art because they are from same field of endeavor for improved communication system. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that multiple access interfaces can be improved by implementing Gaussian random variable model. The motivation for doing so would have been to correct or reduce bit error rate (Elezabi : [0006] and [0041]) which can be interpreted as improved processing for individual user(s) as well. Therefore it would have been obvious to combine above (Suzuki, Juan and Elezabi) references to obtain the invention as specified in claim 2.

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9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki and Juan, Elezabi (as applied to claim 2) and further in view of Faruque (US patent No 6647059). Suzuki, Juan and Elezabi (as applied to claim 2) disclose the entire subject matters except generation of detection statistics for cross correlation matrix. The office has interpreted that the matrix refers to voice and data to the type of user class the user belongs. Faruque discloses that in CDMA, voice and data can be supported in the multi user environment and can be separated for processing via different network elements (Faruque: Fig 1, column 2, line 65-67 and column 3, lines 1-15). The references (Suzuki, Juan, Elezabi and Faruque) are analogous art because they are from same field of endeavor for multi user communication. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that a communication technology for voice and data can be supported with advanced CPE and modified network architecture (i.e. new network elements, for example DSLAM etc.). The motivation for doing so would have been to support multiple users via common frequency without having significant interference (Faruque: Column 1, line 38-40). Therefore it would have been obvious to combine above (Suzuki, Juan, Elezabi and Faruque) references to obtain the invention as specified in claim 3.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki Juan, Elezabi and Faruque. Suzuki, Juan, Faruque, and Elezabi disclose the entire subject as applied to claim except estimation. The office has interpreted that office has interpreted "estimation based on detection statistics" refers to error estimation. Suzuki

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further discloses that an error estimator can be used to perform phase correction (Suzuki: Fig 3, column 10, lines 37-47). The references (Suzuki Juan, Faruque and Elezabi) are analogous art because they are from same field of endeavor for cross correlation. At the time of the invention, it would have been obvious to a person of ordinary skill implementation of estimation with other logics will provide phase correction. The motivation for doing so would have been to reconstruct accurate data with no interference in multi user environment (Suzuki: column 10, lines 7- 12). Therefore it would have been obvious to combine above (Suzuki Juan, Faruque and Elezabi) references to obtain the invention as specified in claim 4.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki Juan, Elezabi, and Faruque (as applied to claim 3). Suzuki, Juan, Elezabi and Faruque disclose the entire subject matters (as applied to claim 3) except specifying generation of a metric associated with each partition. The office has interpreted that a metric refers to interference generation and spread sequences. Suzuki further discloses that the relationship between previous user/ state and present user/state as claimed (Suzuki: Fig 3, column 10, lines 53-59). The references (Suzuki Juan, Elezabi and Faruque) are analogous art because they are from same field of endeavor for cross correlation. At the time of the invention, it would have been obvious to a person of ordinary skill that cross correlation values can be calculated in advance. The motivation for doing so would have been to support to improve the method of calculating the cross correlation (Suzuki: Fig 3, column 10, lines 23-24). Therefore it would have been obvious to combine above

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(Suzuki Juan, Elezabi and Faruque) references to obtain the invention as specified in claim 5.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, Juan and5 Elezabi. Suzuki, Juan, and Elezabi disclose the entire subject matters as applicable for claim 1. The metric refers to BER or others (as described by the applicant in Specification, page 12). Elezabi further discloses that BER can be achieved due to modified matrices ( Elezabi : [0041], Fig 3 and 4). The references (Suzuki, Juan and Elizabe) are analogous art because they are from same field of endeavor for cross correlation. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that multiple access interfaces can be improved by implementing Gaussian random variable model. The motivation for doing so would have been to correct or reduce bit error rate (Elezabi : [0006] and [0041]). Therefore it would have been obvious to combine above (Suzuki, Juan and Elezabi) references to obtain the invention as specified in claim 10 .

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, Juan and Elezabi. Suzuki, Juan, and Elezabi disclose the entire subject matters as applicable to claim 10. The office has interpreted that the metric refers to estimation and takes consideration of time-dependent access interface. Elezabi further discloses that improved metric can support estimation and time dependent access ( Elezabi : [0028] and [0041], Fig 2). The references (Suzuki, Juan and Elizabe) are analogous art



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because they are from same field of endeavor for cross correlation. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that multiple access interfaces can be improved by implementing Gaussian random variable model. The motivation for doing so would have been to correct or reduce bit error rate (Elezabi : [0006] and [0041]). Therefore it would have been obvious to combine above (Suzuki, Juan and Elezabi) references to obtain the invention as specified in claim 11 .

14. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki Juan, and Elezabi (as applied to claim 11). Suzuki, Juan, and Elezabi disclose the entire subject matters in the field of "interference cancellation in multi-carrier environment" except specifying generation of a metric associated with each partition. The office has interpreted that metric refers to interference generation and spread sequences. Suzuki further discloses that the relationship between previous user/ state and present user/state as claimed (Suzuki: Fig 3, column 10, lines 53-59). The references (Suzuki Juan, and Elezabi) are analogous art because they are from same field of endeavor for cross correlation. At the time of the invention, it would have been obvious to a person of ordinary skill cross correlation values can be calculated in advance. The motivation for doing so would have been to support to improve the method of calculating the cross correlation (Suzuki: Fig 3, column 10, lines 23-24). Therefore it would have been obvious to combine above (Suzuki Juan, and Elezabi) references to obtain the invention as specified in claim 12.

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15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki Juan, Elezabi (as applied to claim 12) and further in view of Farque. (US patent No 6647059). Suzuki, Juan and Elezabi disclose the entire subject matters in the field of "interference cancellation in multi-carrier environment" except generation of detection statistics for cross correlation matrix. The office has interpreted that the matrix refers to voice and data to the type of user class the user belongs. Faruque discloses that in CDMA, voice and data can be supported in a multi user environment and can be separated for processing via different network elements (Faruque: Fig 1, column 2 line 65-67 and column 3, lines 1-15). The references (Suzuki, Juan, Elezabi and Faruque) are analogous art because they are from same field of endeavor for multi user communication. At the time of the invention, it would have been obvious to a person of ordinary skill in the art that a communication technology for voice and data can be supported with advanced CPE and modified network architecture (i.e. new network elements, for example DSLAM etc.). The motivation for doing so would have been to support multiple users via common frequency without having significant interference (Faruque: Column 1, line 38-40). Therefore it would have been obvious to combine above (Suzuki, Juan, Elezabi and Faruque) references to obtain the invention as specified in claim 13.

16. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki Juan, Elezabi and Faruque Suzuki, Juan Faruque, and Elezabi disclose the entire subject as applied to claim 13 except estimation. The office has interpreted that office

has interpreted "estimation based on detection statistics" refers to error estimation. Suzuki further discloses an error estimator can be used to perform phase correction (Suzuki: Fig 3, column 10, block 53, lines 37-47). The references (Suzuki Juan, Faruque and Elezabi) are analogous art because they are from same field of endeavor for cross correlation. At the time of the invention, it would have been obvious to a person of ordinary skill implementation of estimation with other logics will provide phase correction. The motivation for doing so would have been to reconstruct accurate data with no interference in multi user environment (Suzuki: column 10, lines 7- 12). Therefore it would have been obvious to combine above (Suzuki, Juan, Faruque and Elezabi) references to obtain the invention as specified in claim 14.

### ***Allowable Subject Matter***

17. Claims 15, 16, 17, 18, 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach the above.

### ***Conclusion***

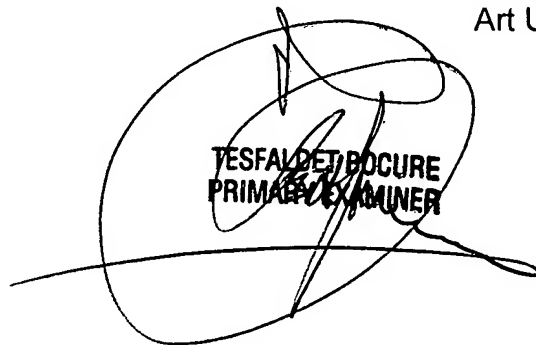
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nasrin Hoque whose telephone number is 571-272-5948. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Nasrin Hoque*  
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